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Abstract

We predict that access to cross-border financing by the industrial sector reduces firms' reliance on domestic banks, thereby leading to lower rents for banks and greater competition in the domestic banking sector. We also predict that banks take on more risk to offset these lost rents and remain competitive. Using mandatory adoption of International Financial Reporting Standards (IFRS) to identify variation in cross-border financing, we find evidence consistent with our hypotheses. Additional tests verify that the effects emanate from the demand-side (i.e., firms not relying on banks) rather than the supply-side (i.e., banks not willing to lend to firms). Overall, we document how competition from overseas financial markets influences the domestic banking sector.

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"Fundamental economic forces have improved the availability of information in securities markets, making it easier and less costly for business firms to finance their activities by issuing securities rather than going to banks…fundamental forces not limited to the United States have caused a decline in the profitability of traditional banking throughout the world and have created an incentive for banks to expand into new activities and take additional risks"

Franklin R. Edwards and Frederic S. Mishkin,
FRB New York, Economic Policy Review, 1995

1. INTRODUCTION

Greater access to cross-border financing expands the investor base, reduces financing constraints and improves firm performance (Bekaert, Harvey and Lundblad 2001; Covrig, DeFond and Hung 2007). However, the impact of this change in firms' financing relationships on the domestic banking sector has not been explored in depth. We contend that industrial firms' expanded access to overseas financing is a competitive disadvantage to incumbent banks in that it forces domestic banks to compete with these alternate suppliers of finance. Our primary hypothesis is that the industrial sector's access to cross-border financing increases competition within the domestic banking sector. We document this effect, and also examine domestic banks' responses to the increased competition.[1]

Testing our hypothesis is challenging for several reasons. First, we cannot merely regress bank competition on a country-level measure of cross-border financing because of endogeneity concerns. Second, valid identification requires that our event capture a "demand" shock (i.e., firms demanding less bank financing) rather than a "supply" shock (i.e., banks unwilling to lend to firms). Third, the event should apply only to some groups, so that the observed outcomes can be benchmarked against a control group.

[1] At a conceptual level, our arguments apply to any form of market financing. In other words, access to *domestic* equity (or bond) market financing should also increase bank competition and risk-taking. We focus on cross-border financing as it is more closely linked to our setting, which we discuss below.

We meet these identification conditions by using the mandatory adoption of International Financial Reporting Standards (IFRS) across several countries in 2005 as our event. This event fulfils several requirements to be a valid setting: (i) the adoption of a common set of accounting standards increased cross-border financing to the industrial sector (e.g., DeFond et al. 2011; Yu and Wahid 2014), (ii) it was adopted by several countries such as Germany and the U.K., but not by others such as Japan and the U.S., and (iii) IFRS adoption applied only to publicly listed entities which helps contrast the "demand" side from the "supply" side, as explained below.

IFRS adoption and cross-border financing. Our identifying assumption is that mandatory IFRS adoption increased cross-border financing. Using a difference-in-differences design and country-level portfolio financing data from the IMF, we find that IFRS adopting countries are associated with increased cross-border financing after IFRS adoption to the tune of 10% relative to pre-adoption levels.[2] We also verify that there is no difference in cross-border financing between adopters and non-adopters in the years leading up to adoption.

We use differences in cross-border trade across our sample countries as a falsification test. In contrast to the cross-border financing results, we are unable to detect any increase in cross-border trade around IFRS adoption. Our results are robust to controlling for financial market development, which helps rule out the possibility that unobserved macroeconomic factors such as the overall efficiency and integration of capital and product markets are driving our results. Finally, we attempt to mitigate the endogeneity of IFRS adoption by including time-varying controls for economic development such as per-capita GDP growth and annual inflation and find that our results remain intact.

[2] Our results reinforce the findings in DeFond et al. (2011) and Yu and Wahid (2014) who use foreign mutual fund holdings (a specific form of cross-border financing).

To reinforce the substitutability between bank financing and cross-border financing, we exploit variation in the extent to which IFRS adopters were relying on bank-financing in the pre-adoption period. Using bank credit extended to the private sector to capture banking-sector reliance (Rajan and Zingales, 1998), we find that the post-IFRS adoption increase in cross-border financing is concentrated in countries with greater reliance on bank financing in the pre-adoption period. In particular, cross-border financing increased by 16% in adopting countries with greater banking-sector reliance, as compared to an insignificant 0.02% in those less reliant on bank financing.[3]

Recent studies point to the complementary role of concurrent changes in enforcement that accompany IFRS adoption. For example, Daske et al. (2008) and Christensen et al. (2013) note that countries within the European Union (EU) stepped up enforcement contemporaneously with IFRS adoption (see Barth and Israel, 2013 for a discussion of Christensen et al.). To explore the role of concurrent changes in enforcement around IFRS adoption, we split our sample countries by EU membership. The effects of IFRS adoption on cross-border financing are stronger within the EU, pointing to the role of enforcement. However, we continue to find a statically significant (but economically smaller) effect within non-EU IFRS adopters. We interpret these results as evidence that enforcement complements but does not subsume the effects of IFRS adoption.

IFRS adoption and competition within the domestic banking sector. Following Barth, Caprio and Levine (2004) and Demirguc-Kunt, Laeven and Levine (2004), we measure bank competition using two measures – a country-level measure of banking sector concentration (defined as the share of the five largest banks' assets in total banking assets), and a bank-level net interest margin measure (defined as interest income minus interest expense scaled by total assets).[4]

[3] Bank financing in these countries was 123% and 51% of GDP respectively in the pre-adoption period.
[4] Although we follow prior work and use banking sector concentration, it is less suited to our setting as it does not capture the degree of competition between banks and markets.

Consistent with our prediction, we find that IFRS adoption is associated with keener bank competition as evidenced by both measures. In particular, banking sector concentration falls by 4.47 percentage points (i.e., 6% compared to pre-adoption levels) while bank interest margins shrink by 25 basis points (a 12% reduction) in adopting as compared to non-adopting countries.

To document the link between cross-border financing and bank competition, we partition our IFRS adopters based on the extent of increase in cross-border financing. We find that the observed increases in bank competition are pronounced in IFRS adopters with larger increases in cross-border financing between the pre and post adoption periods. In particular, banks' net interest margins fall by 16% (7%) in countries with above-median (below-median) increases in cross-border financing.[5]

Banks' response. We conclude by examining banks' response to the increased competition in their product markets. Financial intermediation theories predict that banks increase risk taking when competition in their product market intensifies (e.g., Keeley 1990; Besanko and Thakor 1993, Boot and Greenbaum 1993, Hellman, Murdock and Stiglitz 2000). Consistent with theory, we find that banks stepped up risk-taking in response to the IFRS-induced changes in their product markets. In particular, risk-taking increases by 16% relative to pre-levels in banks domiciled in IFRS adopting countries as compared to those in non-adopting countries. To connect these findings to the increases in bank competition documented above, we partition IFRS adopters based on increases in bank competition between the pre and post adoption periods. We perform two partitions – a country-level partition based on the decrease in banking sector concentration, and a bank-level partition based on the decrease in net interest margin. In both cases, the increase in bank risk-taking is concentrated in banks with above-median increases in bank competition. In

[5] The median increase in cross-border financing is 65%.

particular, bank risk-taking increased by 18% in the high competition group. In contrast, risk-taking *decreased* by an insignificant 5% in the low competition group.[6]

These (inter-connected) results suggest that IFRS adoption enabled firms to access cross-border financing, which in turn induced greater competition in banks' domestic product markets, which in turn led banks to increase risk-taking to compensate for the lost rents. To further document the sequential nature of these findings, we perform a dynamic treatment effect, where we decompose the post-IFRS adoption period into the first year after adoption and all subsequent years. We find that the increases in cross-border financing and bank competition are evident from the first year after adoption. In contrast, the greater risk-taking responses kick in only from the second year after adoption.

Sensitivity tests. We perform a battery of tests to rule out alternative interpretations. First, because banks also adopted IFRS, our results might be driven by the "supply" side as opposed to the "demand" side. To mitigate this concern, we restrict our examination to private banks (as IFRS adoption applied only to publicly listed entities), and find that private banks also depict an increase in risk-taking after IFRS adoption. Our data allow us to also control for whether these banks voluntarily adopted IFRS, and we find that this is not driving our results.

Second, our results might be spurious given that mandatory IFRS adoption affected only public firms whereas banks generally lend to private firms. To address this concern, we hand-collect information from Dealscan on German banks' pre-IFRS lending portfolios and classify these banks into two groups – those with high lending concentration in private firms versus those with high lending concentration in public firms.[7] Our results are concentrated in banks with high

[6] Net interest margins fell by 22% in the former group but *rose* by 2% in the latter.

[7] We focus on Germany because it has the largest number of banks in our sample and is well-represented in the Dealscan database. The non-trivial amount of data-collection precludes an analysis of all countries.

lending concentration in public firms. German banks with high lending concentration in private firms do not experience any changes in risk-taking after IFRS adoption.

Third, our inferences are robust to alternative ways of clustering standard errors (see discussion in Christensen et al., 2013 and Barth and Israel, 2013). Finally, we verify that our inferences are not confounded by the recent financial crisis. Our results are not only robust to deleting years that overlap with the crisis, but also do not reveal any differences between adopters and non-adopters in the factors identified by Beltratti and Stulz (2012) as contributing to global banks' poor performance during the recent crisis.

Contributions. Our study makes three contributions. First, we document inter-connectedness between the industrial sector and the banking sector. The recent financial crisis and the ensuing economic slowdown have heightened the importance of better understanding these connections. The transmission mechanism in prior work is almost always from the banking sector to the industrial sector. In contrast, we present evidence of effects working in the reverse direction, i.e., from the industrial sector to the banking sector. In the process, our analysis broadens the economic consequences of IFRS adoption beyond the previously documented financing benefits to firms. We show that IFRS adoption also affected the banking sector and promoted risk-taking.

Second, we document how competition from financial markets affects the domestic banking sector. While several studies examine how banks compete with each another and the economic consequences of bank competition (e.g., Keeley, 1980), our study introduces a novel dimension by positing financial markets as a source of competition to domestic banks.

Finally, our results suggest that while financial reforms such as market liberalization offer financing benefits to firms, they impose costs on domestic banks by reducing their lending rents and inducing them to take on more risk. The overall desirability of these financial reforms involves

a delicate tradeoff between imposing costs on the banking sector and rendering benefits to the industrial sector – a fruitful avenue for future research.

2. MOTIVATION AND HYPOTHESES DEVELOPMENT

2.1 Cross-border financing and competition in the banking sector

The benefits of cross-border financing to industrial firms have been well documented. For example, Bekaert, Harvey and Lundblad (2005) show that equity market liberalizations that give foreign investors the opportunity to invest in domestic equity securities increase economic growth. These effects are attributed to improved risk-sharing and lower financial constraints – both of which lead to increased investment. Similar effects are documented in the "home-bias" literature (e.g., Lau, Ng and Zhang, 2010).

The enhanced access to capital, while a benefit to borrowing firms, is a significant cost to banks. Prior to the inflow of cross-border financing, firms relied on banks to meet their financing needs, resulting in bank enjoying rents in the lending market. By expanding borrowing firms' expanded access to foreign capital markets, cross-border financing forces banks to compete more fiercely with the additional purveyors of financing. In contrast to the large literature that documents the financing benefits of cross-border financing to the industrial sector, the effect of this financing on the banking sector has been relatively unexplored. We predict that cross-border financing by the industrial sector increases competition in the domestic banking sector.

2.2 Banks' response to the increased competition

We examine banks' reaction to the (hypothesized) increase in their product market competition. The "charter-value" hypothesis predicts that banks increase risk-taking when

competition intensifies in their product markets (Keeley 1990, Besanko and Thakor 1993, Boot and Greenbaum 1993, Hellman, Murdock and Stiglitz 2000). The idea is that banks trade-off the benefits of risk-taking (i.e., more profits) with the costs of doing so (i.e., inability to enjoy future rents due to bank failure). Competition reduces the stream of future profits (known as the "charter value") and thus diminishes the marginal cost of bank failure. Analytical models of bank competition also predict that banks would increase risk-taking (see Besanko and Thakor 1993) and Boot and Greenbaum 1993). The idea is that banks, in the course of relationship-lending, acquire private information that generates informational rents. As long as banks can appropriate these rents, they have an incentive to limit their risk exposure so as to preserve the value of the relationship. However, once the industry becomes more competitive, the value of relationship banking decreases and banks respond by taking on more risk (see also Boot and Thakor 2000).

Keeley (1990) offers evidence consistent with the charter-value hypothesis. He examines how increased competition in the banking industry brought about by the easing of banking restrictions influences bank risk-taking. He finds that an increase in bank competition reduces banks' franchise values and that banks respond by taking on more risk. Based on the above studies, we expect the greater bank competition brought about by cross-border financing in the industrial sector to increase risk-taking by banks.

We combine the above two predictions into one hypothesis (stated in the alternative) as follows:

H1: Cross-border financing in the industrial sector increases bank competition and consequently encourages bank risk-taking.

3. RESEARCH DESIGN AND DATA

In this section, we describe the empirical proxies, motivate our control variables, present our regression specifications, and describe the sample. Our empirical strategy involves the following steps. First, we validate that our instrument (IFRS adoption) does indeed increase cross-border financing. Second, we document increases in bank competition after IFRS adoption, and show that these increases are pronounced for countries with greater increases in cross-border financing after IFRS adoption. Third, we document increases in bank risk-taking after IFRS adoption, and provide evidence that these increases are stronger in banks (and countries) that depict larger increases in bank competition after IFRS adoption. Finally, we perform several sensitivity tests to rule out alternative explanations.

3.1 IFRS adoption as the instrument for cross-border financing

We use the mandatory adoption of International Financial Reporting Standards (IFRS) by several countries in 2005 (and Singapore in 2003) as source of identifying variation in cross-border financing. Prior studies find that IFRS adoption increased cross-border financing (e.g., DeFond et al., 2011; Yu and Wahid, 2014). Another advantage of this setting is that not all countries adopted IFRS, thereby providing us with a control group against which to benchmark the effects that we observe in the adopting countries.

We obtain data on countries that adopted IFRS from the sources in Daske et al. (2008, pp. 1100-1102). We define two indicators – *IFRS* to denote adopters vs. non-adopters and *POST* to denote the pre vs. post periods. *POST* takes the value of 0 for the four years before IFRS adoption

and 1 for the five years after adoption. [8] We exclude the year of adoption, which is 2005 for all countries except Singapore, which adopted IFRS in 2003.

3.2 Primary outcome variables

3.2.1 Cross-border financing (CBFIN)

We measure cross-border financing as the extent of foreign portfolio investment made in the country scaled by total GDP. We use this measure as it represents cross-border transactions and positions involving both debt and equity securities, other than those included in Foreign Direct Investment (*FDI*).[9]

3.2.2 Cross-border trade (CBTRADE)

We use cross-border trade (*CBTRADE*) defined as the sum of imports and exports scaled by GDP as a falsification test. We expect no change in *CBTRADE* around IFRS adoption.

3.2.3 Domestic equity market capitalization (EQMKTCAP)

To ensure that our results are not on account of overall improvements in financial markets, we follow Rajan and Zingales (1998) and use the ratio of domestic equity market capitalization scaled by annual GDP as the proxy for financial market development. In addition, we include stock market turnover (*TURNOVER*) defined as the ratio of total shares traded to total shares outstanding as an additional control for macroeconomic factors influencing the domestic equity market.

[8] We use four years of pre period data because annual cross-border financing data (from the IMF) start from 2001. Prior to that, data are available only for 1997. Thus, Singapore has only two years of pre-period data. Our results are robust to excluding Singapore and also to using alternative event windows such as three years before and after adoption and four years rather than five years after adoption.

[9] *FDI*, on the other hand, represents cross border investments that afford the lender control or a significant degree of influence over the borrower (based on a cutoff of 10% of the voting power).

3.2.4 Bank competition

Competition is a difficult construct to capture empirically. We use two measures commonly used in prior studies (e.g., Barth, Caprio and Levine 2004, Demirguc-Kunt, Laeven and Levine 2004): an income-based measure defined at the bank-level and an asset-based measure defined at the country-level. Demirguc-Kunt et al., (2004) find that both measures are positively correlated.

We use net interest margin (*NIM*) as the income-based, bank-level measure and define it as the excess of the bank's interest income over interest expense scaled by total assets. Higher values of *NIM* indicate a less competitive banking sector. We define banking sector concentration (*CONC*) as our asset-based, country-level measure and compute it as the fraction of total banking sector assets held by the five largest banks in the country. Higher values of *CONC* denote a more concentrated (i.e., less competitive) banking sector.[10]

3.2.5 Bank risk-taking (RISK)

Following Laeven and Levine (2009), we use the distance-to-default ratio as the inverse measure of bank risk-taking (*RISK*). It is defined as return on assets plus the capital asset ratio divided by the standard deviation of asset returns.[11] This measure captures the distance from insolvency (Roy, 1952), where insolvency is said to occur when losses exceed bank equity. Thus, lower values of *RISK* signal greater bank risk-taking.

3.3 Control variables

Since cross-border financing (*CBFIN*) and bank asset concentration (*CONC*) are defined at the country-level while the net interest margin (*NIM*) and bank risk-taking (*RISK*) at the bank-

[10] Although this measure is commonly used to measure bank competition, it is not ideal for our setting because it does not capture the extent of competition between banks and markets.
[11] Our results are robust to using return on equity instead of return on assets.

level, we use both a country-level panel as well as a bank-level panel in our tests. We estimate our empirical specifications with country fixed effects which fully control for any cross-country, *time-invariant* heterogeneity and year fixed effects that capture overall time-trends during our sample period. The country fixed-effects obviate the need to include country-level controls such as the level of investor protection, structure of the banking sector, differences in bank regulation etc. We also use bank fixed-effects in some of our bank-level specifications (which we discuss in detail later on). We cluster our robust standard errors by bank.[12]

In addition, we include *time-varying* controls for economic development to mitigate the endogeneity of IFRS adoption (i.e., the decision to adopt IFRS could be correlated with the country's level of economic development). The variables we include are the level of GDP (*GDP*), annual growth in GDP (*GDPGROWTH*), and annual inflation (*INFL*). We also include domestic equity market cap (*EQMKTCAP*) and stock turnover (*TURNOVER*) to control for domestic financial market development. Finally, we include cross-border trade (*TRADE*) to control for any differences in global integration between IFRS adopters and non-adopters during our sample period. The concern with including these variables is that they might be affected by IFRS adoption and thus might be endogenous (see Gormley and Matsa, 2011 for a discussion).

In the bank-level panel, we follow Laeven and Levine (2007, 2009) and include an array of bank-level controls to complement the country-level controls. We include bank growth (*GROWTH*), defined as the annual growth in revenues, total assets of the bank (*LNASSETS*) to control for bank size, liquidity (*LIQUID*) defined as the proportion of liquid assets to liquid

[12] While clustering by bank is more lenient than clustering by country, we use the former to mitigate the concern that our cross-sectional inferences might be due to the more severe clustering. We explain this in greater detail when we discuss the cross-sectional tests. In addition, we tabulate results (both country-level and bank-level) using country-level clustering and find robust results (except for bank concentration).

liabilities, the ratio of loans to total assets (*LOANS*) to capture asset composition, whether the bank is public or private (*LISTED*) [13] and the bank's market share of deposits (*MKTSHARE*).

3.4 Regression specifications

3.4.1 Effect of IFRS adoption on cross-border financing (CBFIN)

To examine the effect of IFRS adoption on cross-border financing (*CBFIN*), we estimate the following country-level, difference-in-differences specification:

$$\begin{aligned} CBFIN_{j,t} = \alpha_j + \lambda_t + \beta_1 IFRS*POST_{j,t} + \beta_2 GDP_{j,t} + \beta_3 GDPGROWTH_{j,t} + \beta_4 INFL_{j,t} \\ + \beta_5 EQMKTCAP_{j,t} + \beta_6 TURNOVER_{j,t} + \beta_7 CBTRADE_{j,t} + \varepsilon_{j,t} \end{aligned} \quad (1)$$

where $CBFIN_{j,t}$ is cross-border financing measured for country *j* at time *t*; α_j and λ_t represent country and year fixed effects respectively. The coefficient on *IFRS*POST* in eq. (1) identifies the incremental changes in *CBFIN* after adoption for adopters as compared to non-adopters. Since eq. (1) includes country fixed effects, the coefficient on *IFRS* gets subsumed and is not identified. Similarly, the year fixed effects subsume *POST*. Our hypothesis predicts $\beta_1 > 0$.

3.4.2 Banking-sector reliance and the effect of IFRS adoption on cross-border financing

We explore how banking sector reliance influences the effect of IFRS adoption on cross-border financing. In particular, we expect the effects of IFRS adoption to be more pronounced in countries that were more reliant on bank financing in the pre-adoption period. To test this prediction, we follow Rajan and Zingales (1998) and use the total amount of bank lending to the private sector (*BNK_REL*) as our proxy for banking sector reliance.[14] We split our IFRS adopters

[13] Following Laeven and Levine (2007), we use the "Listed" indicator to identify public vs. private banks.

[14] We use a this country measure rather than a firm-level measure because of two data constraints – (i) a detailed mapping between each bank in our sample and each firm that it lends to is not available, and (ii) a breakdown of each firm's indebtedness into bank debt versus public debt is also not available.

into two groups (*IFRS_BNK_REL_HI* and *IFRS_BNK_REL_LO*) depending on whether they were more versus less reliant on bank financing in the pre-period (based on the median). We interact each of these indicators with *POST* to separate the effects of IFRS adoption for each group. The regression specification is as follows:

$$\begin{aligned} CBFIN_{j,t} = {} & \alpha_j + \lambda_t + \delta_1 IFRS\_BNK\_REL\_HI * POST_{j,t} + \delta_2 IFRS\_BNK\_REL\_LO * POST_{j,t} \\ & + \delta_3 GDP_{j,t} + \delta_4 GDPGROWTH_{j,t} + \delta_5 INFL_{j,t} + \delta_6 EQMKTCAP_{j,t} \\ & + \delta_7 TURNOVER_{j,t} + \delta_8 CBTRADE_{j,t} + \varepsilon_{j,t} \end{aligned} \quad (2)$$

We expect $\delta_1 > \delta_2$.

3.4.3 Effect of IFRS adoption on bank concentration (CONC)

We estimate the following model to gauge how IFRS adoption affects bank concentration:

$$\begin{aligned} CONC_{j,t} = {} & \alpha_j + \lambda_t + \chi_1 IFRS * POST_{j,t} + \chi_2 GDP_{j,t} + \chi_3 GDPGROWTH_{j,t} + \chi_4 INFL_{j,t} \\ & + \chi_5 EQMKTCAP_{j,t} + \chi_6 TURNOVER_{j,t} + \chi_7 CBTRADE_{j,t} + \varepsilon_{j,t} \end{aligned} \quad (3)$$

Our hypothesis predicts $\chi_1 < 0$.

3.4.4 Effect of IFRS adoption on banks' net interest margin (NIM)

The effect of IFRS adoption on banks' net interest margin is estimated using a bank-level panel as follows:

$$\begin{aligned} NIM_{i,j,t} = {} & \alpha_j + \lambda_t + \eta_1 IFRS * POST_{i,j,t} + \eta_2 GROWTH_{i,j,t} + \eta_3 LNASSETS_{i,j,t} + \eta_4 LIQUID_{i,j,t} \\ & + \eta_5 LOANS_{i,j,t} + \eta_6 LISTED_{i,j,t} + \eta_7 MKTSHARE_{i,j,t} + \eta_8 GDP_{j,t} + \eta_9 GDPGROWTH_{j,t} \\ & + \eta_{10} INFL_{j,t} + \eta_{11} EQMKTCAP_{j,t} + \eta_{12} TURNOVER_{j,t} + \eta_{13} CBTRADE_{j,t} + \varepsilon_{j,t} \end{aligned} \quad (4)$$

where $NIM_{i,j,t}$ is the net interest margin measured for bank *i* in country *j* at time *t*. Our hypothesis predicts $\eta_1 < 0$.

3.4.5 Cross-border financing and the effects of IFRS adoption on bank competition

To tie the post-adoption increases in bank competition to cross-border financing, we split our IFRS adopters into two groups based on changes in cross-border financing between the pre and post adoption periods – *IFRS_*Δ*CBFIN_HI* and *IFRS_*Δ*CBFIN_LO* where *HI* (*LO*) denotes above (below) median changes. We expect increases in bank competition to be pronounced in IFRS countries with above median changes in cross-border financing. In other words, we expect $\theta_1 > \theta_2$ and $\rho_1 > \rho_2$ in the following specifications:

$$\begin{aligned} CONC_{j,t} = {} & \alpha_j + \lambda_t + \theta_1 IFRS\_\Delta CBFIN\_HI * POST_{j,t} + \theta_2 IFRS\_\Delta CBFIN\_LO * POST_{j,t} \\ & + \theta_3 GDP_{j,t} + \theta_4 GDPGROWTH_{j,t} + \theta_5 INFL_{j,t} + \theta_6 EQMKTCAP_{j,t} \\ & + \theta_7 TURNOVER_{j,t} + \theta_8 CBTRADE_{j,t} + \varepsilon_{j,t} \end{aligned} \tag{5}$$

$$\begin{aligned} NIM_{i,j,t} = {} & \alpha_j + \lambda_t + \rho_1 IFRS\_\Delta CBFIN\_HI * POST_{j,t} + \rho_2 IFRS\_\Delta CBFIN\_LO * POST_{j,t} \\ & + \rho_3 GROWTH_{i,j,t} + \rho_4 LNASSETS_{i,j,t} + \rho_5 LIQUID_{i,j,t} + \rho_6 LOANS_{i,j,t} + \rho_7 LISTED_{i,j,t} \\ & + \rho_8 MKTSHARE_{i,j,t} + \rho_9 GDP_{j,t} + \rho_{10} GDPGROWTH_{j,t} + \rho_{11} INFL_{j,t} + \rho_{12} EQMKTCAP_{j,t} \\ & + \rho_{13} TURNOVER_{j,t} + \rho_{14} CBTRADE_{j,t} + \varepsilon_{j,t} \end{aligned} \tag{6}$$

3.4.6 Effect of IFRS adoption on bank risk-taking (RISK)

$$\begin{aligned} RISK_{i,j,t} = {} & \alpha_j + \lambda_t + \omega_1 IFRS * POST_{i,j,t} + \omega_2 GROWTH_{i,j,t} + \omega_3 LNASSETS_{i,j,t} + \omega_4 LIQUID_{i,j,t} \\ & + \omega_5 LOANS_{i,j,t} + \omega_6 LISTED_{i,j,t} + \omega_7 MKTSHARE_{i,j,t} + \omega_8 GDP_{j,t} + \omega_9 GDPGROWTH_{j,t} \\ & + \omega_{10} INFL_{j,t} + \omega_{11} EQMKTCAP_{j,t} + \omega_{12} TURNOVER_{j,t} + \omega_{13} CBTRADE_{j,t} + \varepsilon_{j,t} \end{aligned} \tag{7}$$

Our hypothesis predicts $\omega_1 < 0$.

3.4.7 Bank competition and the effect of IFRS adoption on bank risk-taking

We expect increases in bank risk-taking to be more pronounced in countries (banks) with steeper decreases in bank concentration (net interest margin). To test this prediction, we split our IFRS adopting banks along two dimensions – (i) at the country-level based on changes in bank

concentration between the pre and post periods (*IFRS_*Δ*CONC_HI* and *IFRS_*Δ*CONC_LO*), and (ii) at the bank-level based on changes in net interest margin (*IFRS_*Δ*NIM_HI* and *IFRS_*Δ*NIM_LO)*. We include bank fixed-effects in the latter case as identification comes from bank-level variation. Increases in risk-taking are expected to be more pronounced in the *IFRS_*Δ*CONC_LO* and *IFRS_*Δ*NIM_LO* groups, i.e., we expect $\pi_1 > \pi_2$ and $\phi_1 > \phi_2$. The specifications are:

$$\begin{aligned} RISK_{i,j,t} = {} & \alpha_j + \lambda_t + \pi_1 IFRS\_\Delta CONC\_HI * POST_{j,t} + \pi_2 IFRS\_\Delta CONC\_LO * POST_{j,t} \\ & + \pi_3 GROWTH_{i,j,t} + \pi_4 LNASSETS_{i,j,t} + \pi_5 LIQUID_{i,j,t} + \pi_6 LOANS_{i,j,t} + \pi_7 LISTED_{i,j,t} \\ & + \pi_8 MKTSHARE_{i,j,t} + \pi_9 GDP_{j,t} + \pi_{10} GDPGROWTH_{j,t} + \pi_{11} INFL_{j,t} + \pi_{12} EQMKTCAP_{j,t} \\ & + \pi_{13} TURNOVER_{j,t} + \pi_{14} CBTRADE_{j,t} + \varepsilon_{j,t} \end{aligned} \tag{8}$$

$$\begin{aligned} RISK_{i,j,t} = {} & \alpha_j + \lambda_t + \phi_1 IFRS\_\Delta NIM\_HI * POST_{j,t} + \phi_2 IFRS\_\Delta NIM\_LO * POST_{j,t} \\ & + \phi_3 GROWTH_{i,j,t} + \phi_4 LNASSETS_{i,j,t} + \phi_5 LIQUID_{i,j,t} + \phi_6 LOANS_{i,j,t} + \phi_7 LISTED_{i,j,t} \\ & + \phi_8 MKTSHARE_{i,j,t} + \phi_9 GDP_{j,t} + \phi_{10} GDPGROWTH_{j,t} + \phi_{11} INFL_{j,t} + \phi_{12} EQMKTCAP_{j,t} \\ & + \phi_{13} TURNOVER_{j,t} + \phi_{14} CBTRADE_{j,t} + \varepsilon_{j,t} \end{aligned} \tag{9}$$

3.5 Sample

Our data are from four sources. Cross-border financing (*CBFIN*) data are obtained from the International Financial Statistics (IFS) database of the IMF. Domestic market cap (*EQMKTCAP*), stock turnover (*TURNOVER*), cross-border trade (*CBTRADE*), bank concentration (*CONC*), bank financing (*BNKFIN*), GDP and inflation data are from the World Development Indicators (WDI) database of the World Bank. The bank-level outcome variables (net-interest margin (*NIM*), bank risk-taking (*RISK*)) and controls are estimated from Bankscope, a Bureau van Dijk database on international banks. Finally, IFRS adoption dates are from Daske et al. (2008).

Table 1 presents the list of IFRS adopters and non-adopters. Twenty-six countries spread across Europe and Asia adopted IFRS while twenty-four countries in the same regions do not. The

list of adopters comprises all EU countries such as Germany, France, and the U.K. and also others such as Hong Kong, Singapore and the Philippines. Notable non-adopters are Japan, the U.S. and Brazil. Our final sample comprises 59,164 bank-year observations and ranges from 12,523 observations from Germany to 79 from Bermuda.[15]

Table 2, Panel A presents descriptive statistics of the country-level variables while Panel B tabulates the bank-level variables. The mean cross-border financing (*CBFIN*) is 2.126 which corresponds to 212.6% of GDP. The median is more modest at 0.449 (44.9% of GDP) indicating a right-skewed distribution. We therefore use log-transformed values in the multivariate regressions. The mean domestic market cap (*EQMKTCAP*) is 0.793 which corresponds to 79.3% of GDP, while average cross-border trade (*CBTRADE*) is 0.704 or 70.4% of GDP. The mean value of bank concentration (*CONC*) is 68.988, which suggests that around 69% of the total banking assets in the country are concentrated in the top 5 banks. There is wide variation in this measure across the sample countries with a minimum value of 28.012% and a maximum of 100%.

Turning to the bank-level variables, the net interest margin (*NIM*) of the average bank in the sample is 2.104% with the highest spread being 8.39% and the lowest being -1.15%. The mean value of bank risk-taking (*RISK*) is 3.617 which means that profits in this bank can fall by 36 standard deviations ($e^{3.617}$-1) before bank profits and equity are wiped out.

Overall, the sample depicts rich heterogeneity with respect to both country-level variables as well as bank-level factors.

[15] We exclude U.S. banks from the bank-level tests to mitigate the influence of data coverage on our inferences. In particular, coverage of U.S. banks in Bankscope varies greatly over time. For example, the number of U.S. banks covered goes up from 1,200 in 1998 to 5,170 in 2000 to 6,900 in 2003. In contrast, coverage for other countries is fairly stable. For example, Bankscope covers 48 Canadian banks in 1998, 49 in 2000 and 52 in 2003. Similarly, it covers 1,690 banks in Germany in 1998, 1,631 in 2000 and 1,438 in 2003. The WDI database, in contrast, does not depict such trends in data coverage.

4 RESULTS

4.1 IFRS adoption and cross-border financing

4.1.1 Univariate evidence

We begin our empirical analyses by validating our identification assumption that mandatory IFRS adoption increased cross-border financing.

Figure 1 presents graphical evidence. The horizontal axis represents the years relative to IFRS adoption, while the vertical axis in Panel A plots the average values of (the log of) cross-border financing (*CBFIN*) that correspond to these periods. Two clear patterns emerge. First, IFRS adopters and non-adopters exhibit a similar trend in the pre-IFRS adoption period. This provides validity of the parallel-trends assumption of diff-in-diff designs, i.e., the treatment and control groups appear to be similar prior to the event. Second, while non-adopters continue along their trend, adopters depict a noticeable increase in cross-border financing in the post-IFRS adoption period. Reassuringly, these effects show up in the year immediately after IFRS adoption.

Panel B plots the average values of cross-border trade (*CBTRADE*) around IFRS adoption. In contrast to the cross-border financing results, there does not appear to be any discontinuity in cross-border trade around IFRS adoption for either adopters or non-adopters. We interpret these patterns as suggestive evidence that IFRS adoption is associated with an increase in cross-border financing, but not cross-border trade.

4.1.2 Multivariate evidence

Table 3 presents the multivariate regression results of eq. (1). Models (1) and (2) pertain to cross-border financing (*CBFIN*), and models (3) and (4) to cross-border trade (*CBTRADE*). The first model in each case presents results without the year fixed effects, while the second model

includes year fixed effects. Consistent with the graphical evidence, the coefficient on *IFRS*POST* is positive and significant in Models (1) and (2) where *CBFIN* is the dependent variable. The coefficient on *IFRS*POST* of 0.099 in Model (2) corresponds to a 10% increase ($e^{0.08}$-1) in cross-border financing for IFRS adopters that is incremental to that for non-adopters.

The next set of results indicate that the above increases in cross-border financing do not extend to cross-border trade. In particular, the coefficient on *IFRS*POST* is insignificant in the *CBTRADE* specification indicating no incremental change in cross-border trade for IFRS adopters as compared to non-adopters. These results reduce the likelihood that our results are driven by the increasing globalization of product markets.

4.1.3 Parallel trends and other sensitivity tests

Because IFRS adoption was not random and that countries chose to adopt these standards, it could be that more cross-border financing in adopting countries is what led them to adopt these standards in the first place (i.e., reverse causality). A related concern is that we might be merely picking up ongoing time-trends that started before IFRS adoption. Or perhaps unobservable macroeconomic changes are the true drivers of both IFRS adoption and greater cross-border financing (the omitted variable concern).

The reverse causality and time-trend arguments make a common prediction – one should observe increased cross-border financing in adopting countries in the years leading up to IFRS adoption. To investigate this possibility, we follow Bertrand and Mullainathan (2003) and examine the dynamic effects of IFRS adoption. In particular, we create additional indicator variables to denote the two years immediately preceding IFRS adoption (*POST_-2* and *POST_-1*) and interact these with *IFRS*. The reverse causality and time trend interpretations predict significant

coefficients on *IFRS*POST_-2* and *IFRS*POST_-1*. Model (1) of Table 4 presents these dynamic treatment effects. The coefficients on *IFRS*POST_-2* and *IFRS*POST_-1* are both insignificant, providing no support for the reverse causality or time-trend interpretations. The coefficient on *IFRS*POST* however remains positive and significant.

The sharpness of the results around IFRS adoption helps alleviate concerns that the effects might be due to unobservable macroeconomic changes correlated with IFRS adoption. However, to further address this concern, we include the level and growth in GDP (*GDP* and *GDPGROWTH*) and annual inflation (*INFL*) as *time-varying* controls for *changes* in economic development that might be correlated with the decision to adopt IFRS. These results, in Model (2), indicate that our inferences remain unchanged. The coefficient on *IFRS*POST* remains positive and significant while those on *IFRS*POST_-2* and *IFRS*POST_-1* remain insignificant. Finally, we also control for domestic market cap (*EQMKTCAP*), stock market turnover (*TURNOVER*) and cross-border trade (*CBTRADE*) as a "catch-all" for changes in domestic market development and global integration of markets. Our results in Model (3) continue to depict a positive and significant coefficient on *IFRS*POST*, indicating that our inferences are likely driven by IFRS adoption and not by other unobservable factors.

4.1.4 Role of banking sector reliance

Table 5, Panel A presents results of how banking sector reliance (in the pre-period) influences the effect of IFRS adoption on cross-border financing. Consistent with our prediction in eq. (2), we find that the coefficient on *IFRS_BNK_REL_HI*POST* is larger in magnitude (0.151) than that on *IFRS_BNK_REL_LO*POST* (-0.002). These differences are statistically significant at the 1% level. In fact, post-IFRS adoption increases in cross-border financing are concentrated in

countries with a greater reliance on the banking sector in the pre-adoption period. These countries experience a 16% increase in cross-border financing between the pre and post adoption periods.[16] There is no increase in cross-border financing in IFRS countries less reliant on bank financing.[17]

4.1.5 Role of enforcement

A recent study by Christensen et al. (2013) posits that it might be premature to attribute economic consequences around IFRS adoption to the accounting rules alone. They note that several countries that adopted IFRS also made contemporaneous changes to enforcement and that care needs to be exercised to determine the true cause of the documented effects. To drive home their point, they split IFRS adopters into those in the European Union (EU) versus those outside and show that increases in stock liquidity are concentrated in the former group. This, they argue, shows that IFRS adoption alone is insufficient to generate increases in borrower transparency (see Barth and Israel, 2013 for a counter-argument). While this debate is far from settled, we perform similar tests to better understand the influence of enforcement on our results.

In particular, we split our sample into countries within the EU and those outside, and estimate eq. (1) within each subsample.[18] Consistent with Christensen et al. (2013), we find in Panel B of Table 5 that the effect of IFRS adoption is stronger within the EU. In particular, the coefficient on *IFRS*POST* in the EU subsample is statistically significant and economically larger (0.419) than that in the non-EU subsample (0.081). Further, the latter coefficient is also statistically significant, indicating that non-EU adopters are also associated with an increase in cross-border

[16] The average pre-period bank financing in this group was to the tune of 123% of GDP.
[17] The average bank financing in this group was 51% of GDP.
[18] We use the split-sample design rather than splitting our IFRS indicator into EU and non-EU groups because we already split it along the bank financing dimension. However, decomposing the *IFRS* indicator into four groups provides similar inferences.

financing. When we split the *IFRS* indicator based on banking sector reliance, we find that the increases in cross-border financing for IFRS adopters in both subsamples is concentrated in countries with greater banking sector reliance in the pre-period. In other words, only the coefficient on *IFRS_BNK_REL_HI*POST* is positive and significant in both the EU and non-EU subsamples, while that on *IFRS_BNK_REL_LO*POST* is insignificant. Further, consistent with the complementary effect of enforcement, the coefficient on *IFRS_BNK_REL_HI*POST* is larger in magnitude in the EU subsample (0.299) as compared to the non-EU subsample (0.129) with these differences being statistically significant at the 5% level.

We summarize these results as evidence that enforcement complements but does not subsume the effects of IFRS adoption.

4.2 IFRS adoption and bank competition

4.2.1 Overall effects and the role of cross-border financing

We now turn to the effect of IFRS adoption on bank competition. Results of eq.'s (3) and (4) are presented in Table 6. Models (1) and (2) are based on banking sector concentration (*CONC*) and employ a country-level panel, while Models (2) and (3) present the net interest margin (*NIM*) results and are based on a bank-level panel.

Consistent with hypothesis *H1*, we find that IFRS adoption is associated with greater bank competition, as evidenced by both measures. In particular, the coefficient on *IFRS*POST* is negative (-4.469) and significant at the 1% level in Model (1) where *CONC* is the dependent variable. This drop in bank concentration of 4.469 corresponds to a decrease of 6% compared to pre-adoption levels (given a pre-period mean *CONC* of 73.12 for IFRS adopters). Similarly, the coefficient on *IFRS*POST* is negative (-0.247) and significant at the 1% level in Model (3) where

NIM is the dependent variable. This 25 basis points drop in the net interest margin corresponds to a 12% decrease in lending margins (given a pre-period mean *NIM* of 2.033 for IFRS adopters).

While the above results speak to the overall effects of IFRS adoption, they do not illustrate the link between the increases in cross-border financing and greater bank competition.[19] To examine this link, we split the *IFRS* indicator into *IFRS_*Δ*CBFIN_HI* and *IFRS_*Δ*CBFIN_LO* based on above versus below median increases in cross-border financing, and compare the increases in bank competition between these two groups. These results based on eq.'s (5) and (6) are presented in Models (2) and (4) respectively of Table 6.

Consistent with our hypothesis, we find that the increases in bank competition are more pronounced in IFRS adopting countries that experienced larger (i.e., above median) increases in cross-border financing between the pre and post adoption periods. In particular, the coefficient on *IFRS_*Δ*CBFIN_HI*POST* is more negative (-6.212 and -0.312) than that on *IFRS_*Δ*CBFIN_LO*POST* (-2.475 and -0.153) in both the bank concentration (*CONC*) and net interest margin (*NIM*) specifications. Further, these differences are statistically significant at the 10% and 5% levels respectively.

In terms of economic significance, countries in the *IFRS_*Δ*CBFIN_HI* group encountered an 8% decrease in banking sector concentration and a 16% decrease in net interest margin. In contrast, countries in the *IFRS_*Δ*CBFIN_LO* group faced a (statistically insignificant) 3% decrease in banking sector concentration and a (weakly significant) 7% decrease in net interest margins.

[19] We thank the referees for these suggestions.

4.3 IFRS adoption and bank risk-taking

4.3.1 Overall effects and the role of bank competition

Table 7 tabulates results of banks' risk-taking responses to the higher competition in their product markets. Model (1) presents results of eq. (7) where we regress the bank-level measure of risk-taking (*RISK*) on *IFRS*POST* and include bank-level and country-level controls. Since *RISK* is an inverse measure of risk-taking, Hypothesis *H1* predicts a negative coefficient on *IFRS*POST*. That is precisely what we uncover in Model (1). The coefficient on *IFRS*POST* is negative and significant at the 1% level, indicating higher risk-taking after IFRS adoption. The value of -0.171 on *IFRS*POST* corresponds to a 16% increase ($e^{-0.171}$-1) in bank risk-taking. Thus, banks appear to resort to greater risk-taking after IFRS adoption, as predicted.

While the above results are suggestive of bank competition affecting risk-taking, we reinforce this link using cross-sectional splits. In particular, we split our *IFRS* indicator along two dimensions based on: increases in bank concentration defined at the country-level (*IFRS_*Δ*CONC_HI* and *IFRS_*Δ*CONC_LO)*, and changes in net interest margin at the bank-level (*IFRS_*Δ*NIM_HI* and *IFRS_*Δ*NIM_LO*). These are represented by eq.'s (8) and (9).

Since steeper decreases in *CONC* and *NIM* denote keener bank competition, we expect the effect of IFRS adoption on risk-taking to be pronounced in the *IFRS_*Δ*CONC_LO* and *IFRS_*Δ*NIM_LO* groups. Models (2) and (3) present results of these tests. Consistent with our expectation, the coefficient on *IFRS_*Δ*CONC_LO*POST* is more negative (-0.221) than that on *IFRS_*Δ*CONC_HI*POST* (-0.103), with this difference being statistically significant at the 5% level. In fact, the latter coefficient is insignificant from zero indicating no evidence of higher risk-taking in banks with above median changes in banking sector concentration between the pre and

post IFRS periods. The higher risk-taking is concentrated in banks with below median increases in banking sector concentration.

Similar inferences extend to the bank-level split based on net interest margins. While the coefficient on *IFRS_ΔNIM_LO*POST* is negative (-0.193) and significant at the 5% level, that on *IFRS_ΔNIM_HI*POST* is positive (0.051) and insignificant. Further, these coefficients are statistically different from each other at the 1% level. In terms of economic significance, bank risk-taking increased by 18% in *IFRS_ΔNIM_LO* banks. In contrast, bank risk-taking *decreased* by an insignificant 5% in *IFRS_ΔNIM_HI* banks. Overall, these results indicate that banks responded to the keener competition in their product markets by taking on more risk.

4.4 Honing in on the linkages between the mechanisms

Our cross-sectional tests suggest that IFRS-induced increases in cross-border financing are associated with greater competition in banks' product markets, which in turn encouraged banks to take on more risk. In this section, we perform an additional test to show that these changes are sequential. In particular, we decompose the *POST* indicator into the year immediately succeeding the year of adoption (*POST_1*) and all other years (*POST_2+*). This allows us to examine when each of our outcomes kick in. In particular, we regress cross-border financing (*CBFIN*), net interest margin (*NIM*) and bank risk-taking (*RISK*) on *IFRS*POST_1* and *IFRS*POST_2+*. We do not make any ex ante predictions, as the intent here is to try and glean evidence on the sequential nature of these effects.

Table 8 presents the results. We find that the coefficients on *IFRS*POST_1* and *IFRS*POST_2+* are both positive and significant and of similar magnitude in the *CBFIN* specification of Model (1). This indicates that post-IFRS increases in cross-border financing kick

in immediately from the year succeeding adoption. A similar result comes through for net interest margin (*NIM*), where the coefficients on *IFRS*POST_1* and *IFRS*POST_2+* are both negative and significant and again of similar magnitude in Model (2). These results indicate that the increases in cross-border financing and bank competition kick in immediately. In contrast, the coefficient on *IFRS*POST_1* in the *RISK* specification of Model (3) is positive and insignificant while that on *IFRS*POST_2+* is negative and significant, indicating that the observed increases in bank risk-taking take an additional year to kick in. We interpret these results as reinforcing the sequential nature of these underlying mechanisms.

4.5 Sensitivity tests

4.5.1 Isolating demand effects from supply effects

To address the concern that bank adoption of IFRS could be driving our results, we restrict our bank-panel to private banks. Since IFRS adoption was mandated for publicly traded firms (and banks), evidence of increased risk-taking in private banks would rule out the possibility that our results are driven by supply-side effects of IFRS adoption by banks. Further, our data allow us to control for whether the bank chose to voluntarily adopt IFRS or retained its local GAAP (which we denote by an indicator *ACCTSTD*).

Table 9, Panel A presents these results, where Models (1) and (2) pertain to *NIM* and Models (3) and (4) to *RISK*. The first specification in each case excludes *ACCTSTD* while the second includes it. Consistent with our prior results, the coefficient on *IFRS_ΔCBFIN_HI*POST* remains negative and significant in both the *NIM* specifications, while *IFRS_ΔCBFIN_LO*POST* remains insignificant. These coefficients are significantly different from each other at the 5% level in both cases.

Similar inferences extend to the risk-taking (*RISK*) results. The coefficient on *IFRS_ΔCONC_LO*POST* remains negative and significant in both specifications, while *IFRS_ΔCONC_HI*POST* continues to be insignificant. Here again, the two coefficients are significantly different at the 5% level (in model (3)) and at the 10% level (in model (4)). Overall, we conclude that our results are unlikely to be confounded by banks adopting IFRS.

4.5.2 Public firms versus private firms

One limitation of our setting is that IFRS adoption applied only to public firms whereas our sample banks could have been lending primarily to private firms. It is difficult to address this concern within our sample as neither IMF nor Bankscope provides detailed borrower-level breakdown of banks' lending portfolios. To circumvent this obstacle, we turn to Dealscan that provides data on the international syndicated loan market. A syndicated loan is extended jointly by a group of banks, including one or sometimes a couple of lead banks and several participant banks (see Giannetti and Laeven, 2012 for a detailed discussion). The advantage of Dealscan is that it provides data on the listing status of borrowers (i.e., public versus private firms) and also on which banks these firms borrow from. The disadvantage, of course, is that it covers only a select set of firms and banks within each country.

Since there is no common identifier linking Dealscan with Bankscope, we manually match the common banks using bank names and therefore conduct this exercise only for Germany – one of the largest countries in our sample and well-represented on Dealscan. To ensure that we are capturing variation in listing status across firms and not across banks, we restrict our sample to private banks. Our hand-collection gives us a final sample of 252 observations. As our sample is restricted to a single country, we exclude the country-level controls. Further, the effect of IFRS

adoption is now captured by *POST* (and not *IFRS*POST*). We split this *POST* variable into two – *POST_PVT* to denote banks that lend to private firms and *POST_PUB* to denote those that lend to public firms. In particular, *POST_PVT* (*POST_PUB*) takes the value of 1 if the bank has an above median concentration of lending to private (public) firms in the pre-IFRS adoption period as computed based on Dealscan.

Table 9, Panel B presents the results. The coefficient on *POST* in Model (1) is negative but insignificant indicating no evidence of higher risk-taking in the entire sample. However, when we distinguish between banks based on the listing status of their borrowers, the results are stark. The coefficient on *POST_PVT* is positive and insignificant (0.177 and *p*-value of 0.431) while that on *POST_PUB* is negative and significant (-0.564 and *p*-value of 0.034). These results indicate no change in risk-taking around IFRS adoption for banks that lent to private firms in the pre-IFRS period but a strong increase for banks that lent to public firms.

Overall, these results provide a validity check that our results stem from banks that lent to public firms rather than those that lent to private firms (the former being the ones impacted by IFRS adoption).

4.5.3 Country-level clustering of standard errors

We cluster the standard errors in our tests by bank which is admittedly more lenient than clustering by country. We do so to mitigate concerns that our cross-sectional inferences might be due to the more severe clustering. For example, we show that the increase in bank risk-taking after IFRS adoption is statistically significant in countries which experienced above-median increases in banking sector competition, and that countries with below-median increases in banking sector competition experience no significant increase in risk-taking. We cluster our standard errors by

bank rather than by country to mitigate the concern that the latter (non-)result might be due to the more stringent country-level clustering. We tabulate all our results (both country-level and bank-level) using country-level clustering in this section. These results are presented in Table 9, Panel C and indicate a significant coefficient on *IFRS*POST* in the cross-border financing (*CBFIN*), net interest margin (*NIM*) and bank risk-taking (*RISK*) regressions. The only exception is banking sector concentration, where *IFRS*POST* is negative but insignificant at conventional levels. However, even in this case, there is a statically significant decrease in bank concentration (not tabulated) for countries with greater increases in cross-border financing (i.e., the coefficient on *IFRS_*Δ*CBFIN_HI*POST* is negative and significant at the 10% level).[20] Overall, we interpret these results as evidence that our results are robust to clustering standard errors more stringently.

4.5.4 Are the results driven by the recent financial crisis?

Given the proximity of the IFRS adoption date to the recent financial crisis, we examine whether our results are driven by the crisis. In this case, the crisis should have affected IFRS adopters differentially than non-adopters. This is because, any overall effects of the crisis would be subsumed by the year fixed effects and would therefore not bias the coefficient on *IFRS*POST*. To explore whether the crisis affected adopters differently from non-adopters, we perform two tests – first, we exclude 2008 from our sample as it overlaps with the crisis period and find consistent results. Second, we follow Beltratti and Stulz (2012) and look for differences across adopters and non-adopters in factors that contributed to global banks' poor performance during the recent crisis. Beltratti and Stulz (2012) find that certain features of banks' asset and liability structures could have predicted their performance during the crisis. On the liability side, banks that

[20] As noted previously, the weaker results are likely because the asset–based concentration measure does not capture competition that banks face from other sources of financing such as capital markets.

were highly levered had greater reliance on short-term capital market funding and those with fewer deposits performed worse. On the asset side, banks from countries with greater restrictions on bank activities fared better.

We examine pre-crisis (i.e., year 2006) differences in bank leverage (*LEV*), deposit ratio (*DEPOSITS*), tier 1 capital ratio (*TIER1*) and funding fragility (*FUND_FRAG*), defined following Beltratti and Stulz (2012) as the ratio of money market funding and inter-bank deposits to total funding. These results are presented in Figure 2 and Table 9, Panel D.

Turning to the graphical evidence, there is no difference in any of the crisis factors between IFRS adopters and non-adopters. This is confirmed by Table 9, Panel D which presents differences in means and medians of the contributing factors across IFRS adopters and non-adopters. As can be seen, adopters and non-adopters do not differ (either economically or statistically) across any of the critical factors that contributed to banks' poor performance during the crisis. These results suggest that the crisis did not contribute to the effects that we attribute to IFRS adoption. However, given the complexity of the recent crisis and the various facets of the banking and industrial sectors that it affected, it is difficult to draw definitive conclusions.

5 CONCLUSION

Using mandatory adoption of International Financial Reporting Standards (IFRS) as identifying variation in cross-border financing, we provide evidence of a link from the industrial sector to the banking sector. We posit and document that cross-border financing by industrial firms induces greater competition between banks and these alternative financing sources. We show that banks respond to higher competition in their product markets by resorting to more risk-taking.

In addition to documenting real effects of IFRS adoption on the banking sector, our study provides novel evidence of transmission mechanisms that emanate from the industrial sector and transmit to the banking sector. The implications of these findings for bank stability and other policy-related outcomes are promising and a fruitful avenue for future research.

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Table 1: List of adopting and non-adopting countries

The list of IFRS adopters and non-adopters is from Daske et al. (2008, pg. 1100-1102). The adoption date of IFRS for Singapore is 2003 and for all other countries is 2005. The sample period comprises of the four years before and five years after the year of adoption (excluding the transition year).

IFRS adopters	Adoption year	Country level obs.	Bank level obs.	Non-adopters	Country level obs.	Bank level obs.
Australia	2005	8	562	Argentina	9	573
Austria	2005	9	1,924	Bermuda	8	79
Belgium	2005	9	691	Brazil	9	1,329
Czech Republic	2005	9	261	Canada	9	566
Denmark	2005	9	1,034	Chile	9	282
Finland	2005	9	210	China	9	723
France	2005	9	3,904	Colombia	9	303
Germany	2005	9	12,523	Egypt	9	278
Greece	2005	9	284	India	9	823
Hong Kong	2005	9	473	Indonesia	9	454
Hungary	2005	9	309	Israel	9	190
Ireland	2005	9	408	Japan	9	7,039
Italy	2005	9	5,031	Malaysia	9	775
Luxembourg	2005	9	885	Mexico	9	435
Netherlands	2005	9	600	Morocco	9	166
Norway	2005	9	1,120	New Zealand	8	131
Philippines	2005	9	385	Pakistan	9	305
Poland	2005	9	415	Peru	9	242
Portugal	2005	9	412	Russia	9	2,297
Singapore	2003	7	296	South Korea	9	400
South Africa	2005	9	325	Sri Lanka	9	192
Spain	2005	9	1,712	Thailand	9	401
Sweden	2005	9	772	Turkey	9	520
Switzerland	2005	9	3,571	U.S.	9	-
U.K.	2005	9	2,385			
Venezuela	2005	6	169			
Total		**228**	**40,661**	**Total**	**214**	**18,503**

Table 2: Descriptive statistics

The country-year sample in Panel A and the bank-year sample in Panel B cover 50 countries (26 adopters and 24 non-adopters) and span the four years before and five years after IFRS adoption (which was 2003 for Singapore and 2005 for all other countries). The year of adoption is excluded from both samples. *CBFIN* denotes cross-border financing defined as the ratio of foreign portfolio investment to total GDP. *EQMKTCAP* denotes domestic equity market cap scaled by annual GDP. *TURNOVER* denotes annual trading volume of all publicly traded stocks scaled by total shares outstanding. *CBTRADE* denotes cross-border trade and is defined as the ratio of imports plus exports to annual GDP. *CONC* indicates banking sector concentration and is defined as the percentage of the top five banks' assets to total banking assets in the country. *BNK_REL* indicates banking sector reliance and is defined as the ratio of total private sector credit extended by domestic banks in the country to annual GDP. *NIM* denotes the net interest margin and is defined as the difference between interest income and interest expense as a percentage of total assets. *RISK* denotes bank risk-taking and is defined as the ratio of bank capital plus return on assets (*ROA*) scaled by the standard deviation of *ROA*. *GROWTH* indicates revenue growth and is defined as the percentage change in total revenues. *LNASSETS* represents bank size and is defined as the log of total bank assets (in USD millions). *LIQUID* denotes the ratio of liquid assets to liquid liabilities. *LOANS* is the ratio of bank loans to total assets. *LISTED* is an indicator variable that denotes public versus private banks. *MKTSHARE* denotes the bank's share of the country's total deposits.

Panel A: Country level:

	Obs.	Mean	Median	Std. dev.	Min	Max
Country-level:						
CBFIN	442	2.126	0.449	7.711	0.009	48.386
EQMKTCAP	442	0.793	0.566	0.738	0.051	4.714
TURNOVER	442	0.777	0.637	0.638	0.008	3.373
CBTRADE	442	0.704	0.530	0.593	0.184	3.474
CONC (%)	428	68.988	70.890	18.750	28.012	100.000
BNK_REL	427	0.929	0.943	0.567	0.110	2.179

Panel B: Bank level:

	Obs.	Mean	Median	Std. dev.	Min	Max
Country-level:						
NIM (%)	53,640	2.104	1.830	1.571	-1.152	8.385
RISK	59,164	3.617	3.619	1.256	0.664	6.659
GROWTH	59,164	0.023	-0.019	0.339	-0.729	1.702
LNASSETS	59,164	7.658	7.332	1.898	4.677	12.662
LIQUID	59,164	0.316	0.202	0.34	0.008	1.857
LOANS	58,364	0.559	0.596	0.232	0.002	0.964
LISTED	59,164	0.168	0.000	0.374	0.000	1.000
MKTSHARE	59,164	0.005	0.000	0.015	0.000	0.080

Table 3: Effect of IFRS adoption on cross-border financing (*CBFIN*)

The dependent variable in Models (1) and (2) is cross-border financing (*CBFIN*), while that in Models (3) and (4) is cross-border trade (*CBTRADE*). *POST* is an indicator variable that takes 1 for the post-IFRS adoption period defined as the five years after IFRS adoption and 0 for the four years before adoption. *IFRS* is an indicator variable that denotes IFRS adopters versus non-adopters. *GDP* represents log GDP. *GDPGROWTH* and *INFL* represent the annual GDP growth and annual inflation respectively. All regressions include country fixed effects. In addition, Models (2) and (4) also include year fixed effects. Detailed definitions are in Table 2.

	Cross-border Financing (*CBFIN*)				Cross-border Trade (*CBTRADE*)			
	(1)		(2)		(3)		(4)	
	Coeff.	*p*-val.	Coeff.	*p*-val.	Coeff.	*p*-val.	Coeff.	*p*-val.
POST	0.079	<0.001	–	–	0.029	<0.001	–	–
IFRS*POST	**0.100**	**<0.001**	**0.099**	**<0.001**	**0.003**	**0.759**	**0.003**	**0.716**
Year effects	No		Yes		No		Yes	
Country effects	Yes		Yes		Yes		Yes	
Adj. R^2	0.98		0.98		0.97		0.97	
Obs.	442		442		442		442	

Table 4: Parallel trends and other sensitivity tests

The dependent variable is cross-border financing (*CBFIN*). *IFRS* is an indicator variable that denotes IFRS adopters versus non-adopters. *POST_-2* and *POST_-1* are indicator variables that denote the two years before and one year before IFRS adoption respectively. *POST* is an indicator variable that denotes the post-IFRS adoption period. *GDP* represents log GDP. *GDPGROWTH* and *INFL* represent the annual GDP growth and annual inflation rates respectively. *EQMKTCAP* denotes domestic equity market cap scaled by annual GDP. *TURNOVER* denotes annual trading volume of all publicly traded stocks scaled by total shares outstanding. *CBTRADE* denotes cross-border trade (i.e., imports and exports) scaled by annual GDP. All regressions include country and year fixed effects. Detailed definitions are in Table 2.

	Cross-border Financing (*CBFIN*)					
	(1)		(2)		(3)	
	Coeff.	*p*-val.	Coeff.	*p*-val.	Coeff.	*p*-val.
IFRS*POST_-2	**0.020**	**0.539**	**0.025**	**0.428**	**0.038**	**0.253**
IFRS*POST_-1	**0.026**	**0.410**	**0.037**	**0.221**	**0.049**	**0.118**
IFRS*POST	**0.111**	**<0.001**	**0.098**	**<0.001**	**0.118**	**<0.001**
GDP			-0.128	<0.001	-0.181	<0.001
GDPGROWTH			-0.299	0.149	-0.247	0.168
INFL			-0.040	0.701	-0.093	0.349
EQMKTCAP					0.161	0.001
TURNOVER					-0.052	0.144
CBTRADE					-0.306	0.061
Year effects	Yes		Yes		Yes	
Country effects	Yes		Yes		Yes	
Adj. R^2	0.98		0.98		0.98	
Obs.	442		442		442	

Table 5: The role of country-level institutions

The dependent variable is cross-border financing (*CBFIN*). *IFRS_BNK_REL_HI* (*IFRS_BNK_REL_LO*) denotes IFRS adopters with above (below) median banking sector financing (*BNK_REL*) in the pre-adoption period. *POST* is an indicator variable that denotes the post-IFRS adoption period. All regressions include the control variables of Model (3) of Table 4, and in addition country and year fixed effects. Detailed definitions are in Table 2.

Panel A: Banking sector reliance

	Cross-border Financing (*CBFIN*)			
	(1)		(2)	
	Coeff.	*p*-val.	Coeff.	*p*-val.
IFRS_BNK_REL_HI*POST (1)	**0.165**	**<0.001**	**0.151**	**<0.001**
IFRS_BNK_REL_LO*POST (2)	**-0.010**	**0.485**	**-0.002**	**0.887**
p. value of (1) = (2)	<0.001		<0.001	
Controls	No		Yes	
Year effects	Yes		Yes	
Country effects	Yes		Yes	
Adj. R^2	0.98		0.98	
Obs.	442		442	

Panel B: Enforcement

The dependent variable is cross-border financing (*CBFIN*). Models (1) and (2) as well as (3) and (4) split the sample into European Union (EU) members and non-members respectively. *IFRS* is an indicator variable that denotes IFRS adopters versus non-adopters. *IFRS_BNK_REL_HI* (*IFRS_BNK_REL_LO*) denotes IFRS adopters with above (below) median banking sector financing (*BNK_REL*) in the pre-adoption period. *POST* is an indicator variable that denotes the post-IFRS adoption period. All regressions include the control variables of Model (3) of Table 4, and in addition country and year fixed effects. Detailed definitions are in Table 2.

	Cross-border Financing (*CBFIN*)			
	European Union countries	Non-European Union countries	European Union countries	Non-European Union countries
	(1)	(2)	(3)	(4)
	Coeff. *p*-val.	Coeff. *p*-val.	Coeff. *p*-val.	Coeff. *p*-val.
*IFRS*POST*	**0.419 <0.001**	**0.081 0.001**		
IFRS_BNK_REL_HI*POST **(1)**			**0.299 0.001**	**0.129 <0.001**
IFRS_BNK_REL_LO*POST **(2)**			**0.161 0.138**	**-0.004 0.858**
p. value of (1) = (2)			0.006	0.001
p. value of difference in: *IFRS*POST* *IFRS_BNK_REL_HI*POST* *IFRS_BNK_REL_LO*POST*	0.002		0.049 0.108	
Controls	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes
Country effects	Yes	Yes	Yes	Yes
Adj. R^2	0.97	0.98	0.97	0.98
Obs.	162	280	162	280

Table 6: Effect of IFRS adoption on bank competition

The dependent variable in Models (1) and (2) is banking sector concentration (*CONC*), while that in Models (3) and (4) is net interest margin (*NIM*) defined as the difference between interest income and interest expense as a percentage of total assets. *IFRS* and *POST* denote IFRS adopters and the post adoption period respectively. *IFRS_ΔCBFIN_HI* (*IFRS_ΔCBFIN_LO*) denotes IFRS adopters with above (below) median increases in cross-border financing. *GROWTH* indicates revenue growth. *LNASSETS* represents the log of total bank assets. *LIQUID* denotes the ratio of liquid assets to liquid liabilities. *LOANS* is the ratio of bank loans to total assets. *LISTED* is an indicator variable that denotes public versus private banks. *MKTSHARE* denotes the bank's market share of deposits. *GDP* represents log GDP. *GDPGROWTH* and *INFL* represent GDP growth and inflation respectively. *EQMKTCAP* denotes domestic equity market cap. *TURNOVER* denotes stock turnover. *CBTRADE* denotes cross-border trade. All regressions include country and year fixed effects. In addition, Models (3) and (4) cluster the standard errors by bank. Detailed definitions are in Table 2.

	Bank concentration (*CONC*)				Net Interest Margin (*NIM*)			
	(1)		(2)		(3)		(4)	
	Coeff.	*p*-val.	Coeff.	*p*-val.	Coeff.	*p*-val.	Coeff.	*p*-val.
IFRS*POST	**-4.469**	**0.002**			**-0.247**	**<0.001**		
IFRS_ΔCBFIN_HI*POST **(1)**			**-6.212**	**<0.001**			**-0.312**	**<0.001**
IFRS_ΔCBFIN_LO*POST **(2)**			**-2.475**	**0.201**			**-0.153**	**0.073**
GROWTH					0.112	0.016	0.112	0.015
LNASSETS					-0.215	<0.001	-0.215	<0.001
LIQUID					-0.042	0.489	-0.038	0.526
LOANS					1.276	<0.001	1.280	<0.001
LISTED					0.163	<0.001	0.164	<0.001
MKTSHARE					6.875	<0.001	6.839	<0.001
GDP	-2.264	0.516	-2.275	0.507	0.746	0.049	0.882	0.022
GDPGROWTH	-1.099	0.937	-1.260	0.927	1.252	0.429	0.965	0.549
INFL	21.262	0.108	21.211	0.100	3.042	0.011	3.267	0.007
EQMKTCAP	0.136	0.967	0.718	0.835	0.054	0.852	0.121	0.680
TURNOVER	8.550	0.001	8.606	0.001	-0.230	0.215	-0.206	0.235
CBTRADE	7.543	0.545	7.845	0.541	0.589	0.299	0.288	0.595
p. value of (1) = (2)			0.086				0.040	
Year effects	Yes		Yes		Yes		Yes	
Country effects	Yes		Yes		Yes		Yes	
Adj. R^2	0.86		0.86		0.44		0.44	
Obs.	428		428		53,334		53,334	

Table 7: Banks' response to greater competition – higher risk-taking

The dependent variable is bank risk-taking (*RISK*). *IFRS* is an indicator variable that denotes IFRS adopters. *POST* is an indicator variable that denotes the post-adoption period. *IFRS_ΔCONC_HI* and *IFRS_ΔCONC_LO* (*IFRS_ΔNIM_HI* and *IFRS_ΔNIM_LO*) denotes IFRS adopters with above versus below median increases in banking sector concentration (net interest margin) respectively. *GROWTH* indicates revenue growth. *LNASSETS* is the log of total bank assets. *LIQUID* denotes liquid assets scaled by liquid liabilities. *LOANS* is the ratio of loans to total assets. *LISTED* is an indicator variable that denotes public banks. *MKTSHARE* denotes the bank's market share of deposits. *GDP* represents log GDP. *GDPGROWTH* and *INFL* represent GDP growth and inflation respectively. *EQMKTCAP* denotes domestic equity market cap. *TURNOVER* denotes stock turnover. *CBTRADE* denotes cross-border trade. All regressions include year fixed effects and robust standard errors clustered by bank. In addition, Models (1) and (2) include country fixed effects while Model (3) includes bank fixed effects. Detailed definitions are in Table 2.

	Risk-taking (*RISK*)					
	(1)		(2)		(3)	
	Coeff.	*p*-val.	Coeff.	*p*-val.	Coeff.	*p*-val.
IFRS*POST	**-0.171**	**0.007**				
IFRS_ΔCONC_HI*POST **(1)**			**-0.103**	**0.156**		
IFRS_ΔCONC_LO*POST **(2)**			**-0.221**	**0.001**		
IFRS_ΔNIM_HI*POST **(3)**					**0.051**	**0.620**
IFRS_ΔNIM_LO*POST **(4)**					**-0.193**	**0.018**
GROWTH	0.102	0.001	0.103	0.001	0.120	<0.001
LNASSETS	-0.044	<0.001	-0.044	<0.001	-0.191	<0.001
LIQUID	-0.182	<0.001	-0.185	<0.001	0.068	0.014
LOANS	0.785	<0.001	0.787	<0.001	0.564	<0.001
LISTED	0.024	0.328	0.023	0.340	–	–
MKTSHARE	1.881	0.002	1.873	0.002	0.058	0.981
GDP	1.152	<0.001	1.201	<0.001	1.271	<0.001
GDPGROWTH	-0.769	0.301	-0.968	0.193	-0.308	0.702
INFL	-0.750	0.238	-0.650	0.298	-0.852	0.216
EQMKTCAP	0.050	0.770	0.062	0.708	-0.062	0.779
TURNOVER	-0.209	0.085	-0.198	0.080	-0.250	0.081
CBTRADE	1.160	0.003	0.955	0.010	0.517	0.311
p. value of: (1) = (2)			0.021			
(3) = (4)					<0.001	
Year effects	Yes		Yes		Yes	
Country effects	Yes		Yes		No	
Bank effects	No		No		Yes	
Adj. R^2	0.23		0.23		0.68	
Obs.	58,160		58,160		58,160	

Table 8: Dynamic treatment effects

The dependent variable is cross-border financing (*CBFIN*). *IFRS* is an indicator variable that denotes IFRS adopters versus non-adopters. *POST_1* is an indicator variables that denotes the first year succeeding IFRS adoption while *POST_2+* denotes the second year and subsequent years after adoption. *GROWTH* indicates revenue growth. *LNASSETS* is the log of total bank assets. *LIQUID* denotes liquid assets scaled by liquid liabilities. *LOANS* is the ratio of loans to total assets. *LISTED* is an indicator variable that denotes public banks. *MKTSHARE* denotes the bank's market share of deposits. *GDP* represents log GDP. *GDPGROWTH* and *INFL* represent the annual GDP growth and annual inflation rates respectively. *EQMKTCAP* denotes domestic equity market cap scaled by annual GDP. *TURNOVER* denotes annual trading volume of all publicly traded stocks scaled by total shares outstanding. *CBTRADE* denotes cross-border trade (i.e., imports and exports) scaled by annual GDP. All regressions include country and year fixed effects. Models (2) and (3) cluster the standard errors by bank. Detailed definitions are in Table 2.

	Cross-border financing (*CBFIN*)		Net Interest Margin (*NIM*)		Risk-taking (*RISK*)	
	(1)		(2)		(3)	
	Coeff.	*p*-val.	Coeff.	*p*-val.	Coeff.	*p*-val.
IFRS*POST_1	**0.112**	**<0.001**	**-0.238**	**0.008**	**0.061**	**0.382**
IFRS*POST_2+	**0.120**	**<0.001**	**-0.250**	**<0.001**	**-0.257**	**<0.001**
GROWTH			0.112	0.016	0.097	0.002
LNASSETS			-0.215	<0.001	-0.043	<0.001
LIQUID			-0.042	0.489	-0.182	<0.001
LOANS			1.276	<0.001	0.785	<0.001
LISTED			0.163	<0.001	0.024	0.323
MKTSHARE			6.876	<0.001	1.900	0.002
GDP	-0.181	<0.001	0.742	0.047	1.050	<0.001
GDPGROWTH	-0.243	0.177	1.247	0.431	-0.849	0.260
INFL	-0.093	0.346	3.043	0.011	-0.694	0.290
EQMKTCAP	0.163	0.001	0.053	0.855	0.016	0.922
TURNOVER	-0.052	0.143	-0.232	0.205	-0.246	0.043
CBTRADE	-0.306	0.062	0.589	0.299	1.132	0.004
Year effects	Yes		Yes		Yes	
Country effects	Yes		Yes		Yes	
Adj. R^2	0.98		0.44		0.23	
Obs.	442		53,334		58,160	

Table 9: Sensitivity tests

Panel A: Isolating demand versus supply effects

The bank-level sample in this panel is restricted to private banks (i.e., those not publicly listed). The dependent variable is bank risk-taking (*RISK*). *IFRS_ΔCBFIN_HI* (*IFRS_ΔCBFIN_LO*) denotes IFRS adopters with above (below) median increases in cross-border financing. *IFRS_ΔCONC_HI* and *IFRS_ΔCONC_LO* denotes IFRS adopters with above versus below median increases in banking sector concentration. *POST* indicates the post adoption period. *ACCTSTD* is an indicator variable that denotes whether the private bank reports under Local GAAP or under IFRS. All regressions include the set of controls in Model (3) of Table 4, and in addition, year and country fixed effects. Robust standard errors are clustered by bank. Detailed definitions are in Table 2.

	Net Interest Margin (*NIM*)				Bank risk-taking (*RISK*)			
	(1)		(2)		(3)		(4)	
	Coeff.	*p*-val.	Coeff.	*p*-val.	Coeff.	*p*-val.	Coeff.	*p*-val.
IFRS_ΔCBFIN_HI*POST **(1)**	**-0.278**	**<0.001**	**-0.278**	**<0.001**				
IFRS_ΔCBFIN_LO*POST **(2)**	**-0.107**	**0.241**	**-0.107**	**0.275**				
IFRS_ΔCONC_HI*POST **(3)**					**-0.088**	**0.199**	**-0.085**	**0.218**
IFRS_ΔCONC_LO*POST **(4)**					**-0.189**	**0.002**	**-0.166**	**0.012**
ACCTSTD			-0.001	0.995			-0.048	0.406
p. value of: (1) = (2) (3) = (4)	0.032		0.032		0.042		0.071	
Controls	Yes		Yes		Yes		Yes	
Year effects	Yes		Yes		Yes		Yes	
Country effects	Yes		Yes		Yes		Yes	
Adj. R^2	0.40		0.40		0.23		0.23	
Obs.	44,502		44,502		48,511		48,511	

Panel B: Public versus private firms

This panel uses a subset of German banks with data on listing status of their syndicated loan borrowers on Dealscan. The dependent variable is bank risk-taking (*RISK*). *POST* is an indicator variable that denotes the post-IFRS adoption period. The *POST* indicator is split into two indicators – *POST_PVT* and *POST_PUB* that denote the post-IFRS adoption period for banks with above median lending concentration in private firms and public firms respectively. *GROWTH* represents annual growth in revenues. *LNASSETS* is the log of total bank assets. *LIQUID* indicates the ratio of liquid assets to liquid liabilities. *LOANS* is the ratio of loans to total assets. *MKTSHARE* denotes the market share of the country's deposits.

	RISK			
	(1)		(2)	
	Coeff.	*p*-val.	Coeff.	*p*-val.
POST	**-0.117**	**0.579**		
POST_PVT			**0.177**	**0.431**
POST_PUB			**-0.564**	**0.034**
GROWTH	0.888	0.030	0.897	0.021
LNASSETS	-0.031	0.513	-0.019	0.647
LIQUID	-1.228	0.035	-0.873	0.043
LOANS	-0.142	0.760	-0.128	0.721
MKTSHARE	-43.764	0.013	-40.239	0.005
p. value of diff.			<0.001	
Year effects	No		No	
Bank effects	No		No	
Adj. R^2	0.25		0.28	
Obs.	252		252	

Panel C: Clustering at the country-level

The dependent variables are cross-border financing (*CBFIN*), banking sector concentration (*CONC*), net interest margin (*NIM*) and bank risk-taking (*RISK*) respectively. The country-level tests of Models (1) and (2) include all the country-level controls, while the bank-level specifications of Models (3) and (4) include all country-level and bank-level controls. In addition, all specifications include year and country fixed effects and robust standard errors clustered at the country level. Detailed definitions are in Table 2.

	Cross-border Financing (*CBFIN*)		Bank concentration (*CONC*)		Net Interest Margin (*NIM*)		Risk-taking (*RISK*)	
	(1)		(2)		(3)		(4)	
	Coeff.	*p*-val.	Coeff.	*p*-val.	Coeff.	*p*-val.	Coeff.	*p*-val.
IFRS*POST	**0.094**	**0.015**	**-4.469**	**0.133**	**-0.246**	**0.007**	**-0.170**	**0.012**
Controls	Yes		Yes		Yes		Yes	
Year effects	Yes		Yes		Yes		Yes	
Country effects	Yes		Yes		Yes		Yes	
Adj. R^2	0.98		0.87		0.44		0.23	
Obs.	442		428		53,509		58,364	

Panel D: Are the results driven by the recent crisis?

This panel presents factors that contributed to banks' poor performance in the crisis. *LEV* denotes bank leverage, while *DEPOSITS* indicates the proportion of deposits to total assets. *TIER1* indicates the tier 1 capital ratio, while *FUND_FRAG* denotes funding fragility, defined as the ratio of money market funding and inter-bank deposits to total funding. The values tabulated are for the pre-period (i.e., 2006).

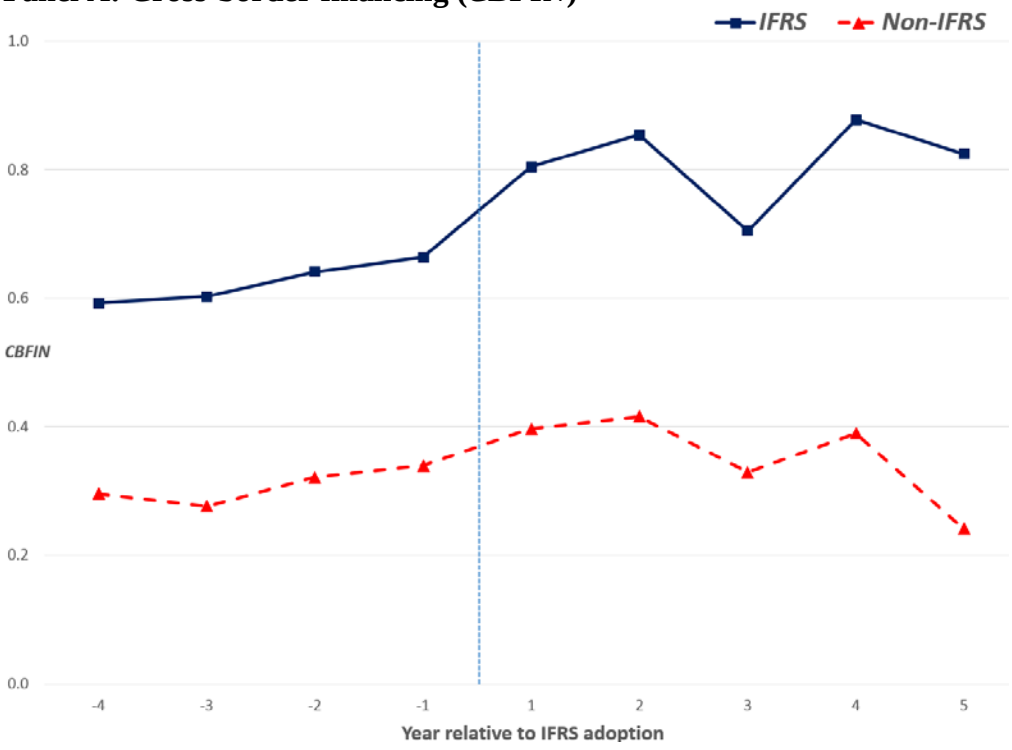
Differences in contributing factors:

	LEV		*DEPOSITS*		*TIER1*		*FUND_FRAG*	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
IFRS = 1	88.606	91.791	67.239	74.331	14.608	10.761	38.024	31.532
IFRS = 0	86.954	90.698	64.807	72.651	16.174	12.972	31.876	26.933
p. value of difference	0.159	0.262	0.469	0.857	0.342	0.405	0.222	0.325

Figure 1: IFRS adoption, cross-border financing (*CBFIN*), cross-border trade (*CBTRADE*)

The horizontal axis denotes years relative to IFRS adoption. The vertical axis plots cross-border financing in Panel A, domestic equity market cap in Panel B and cross-border trade in Panel C.

Panel A: Cross-border financing (*CBFIN*)



Panel B: Cross-border trade (*CBTRADE*) around IFRS adoption

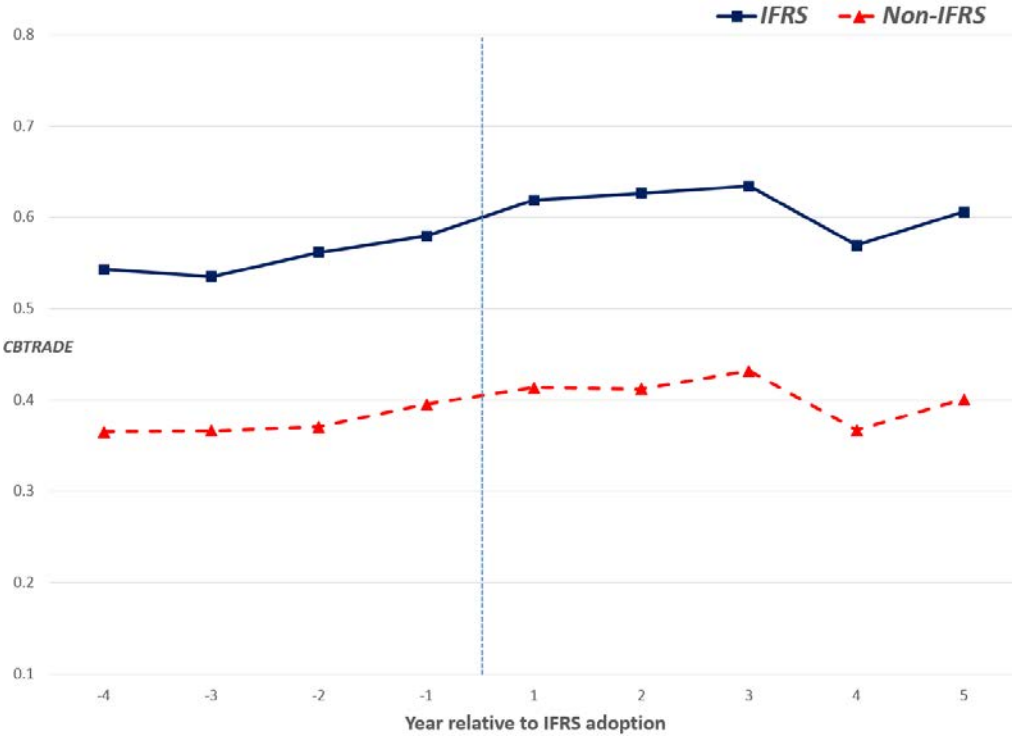


Figure 2: Differences in crisis-related factors between IFRS adopters and non-adopters

The horizontal axis presents factors that contributed to banks' poor performance in the crisis differentiated between IFRS adopters and non-adopters. *LEV* denotes bank leverage, while *DEPOSITS* indicates the proportion of deposits to total assets. *TIER1* indicates the tier 1 capital ratio, while *FUND_FRAG* denotes funding fragility, defined as the ratio of money market funding and inter-bank deposits to total funding. The values tabulated are for the pre-crisis period (i.e., 2006).